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Stephen Erfle; Henry McMillan; Bernard Grofman

The Public Opinion Quarterly, Vol. 54, No. 1. (Spring, 1990), pp. 48-63.

Stable URL:

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REGULATION VIA THREATS

POLITICS, MEDIA COVERAGE, AND OIL PRICING DECISIONS

STEPHEN ERFLE
HENRY McMILLAN AND
BERNARD GROFMAN

Abstract Using the oil crisis of the late 1970s as a case study, we examine the intertwined influences of public opinion and media attention on the credibility of regulatory threats. We focus on three factors: the intensity of public demands for regulatory intervention, the extent to which there are other competing demands on legislative attention, and the availability of scapegoats external to the industry. We use television news coverage of various topics to measure these three factors. We hypothesize that firms threatened with potential regulation restrained price increases, with the largest and most publicly visible firms exercising the greatest restraint. We find that large, visible oil firms restrained price increases for the most important decontrolled products (diesel fuel oil) when media coverage of the oil industry was extensive. These firms exercised less restraint when the government was busy with other issues or when political instability in the Middle East offered an external rationale for oil price increases.

Under what circumstances will a government intervene to impose emergency price controls on a given commodity? Erfle, McMillan, and

STEPHEN ERFLE is an Assistant Professor of Economics at Dickinson College, Carlisle, PA 17013. HENRY MCMILLAN is a Financial Economist for the Office of Economic Analysis, U.S. Securities and Exchange Commission, Washington, DC 20549. BERNARD GROFMAN is a Professor of Political Science at the University of California, Irvine, CA 92717. The authors are grateful to David Brownstone, Amihai Glazer, and Ken Small for helpful suggestions; to Judith Nerhus and Kevin Easter for able research assistance; and to Wilma Laws and Susan Pursche for final manuscript preparation. The Securities and Exchange Commission, as a matter of policy, disclaims responsibility for any private publication or statement by any of its employees. The views expressed herein are those of the authors and do not necessarily reflect the views of the Commission or McMillan's colleagues upon the staff of the Commission. The authors are responsible for any errors and omissions.

Grofman (1989:136) have proposed the “regulatory threat hypothesis” to explain the response of different firms to the threat of governmental regulation:

When the threat of governmental price regulation is high, the larger, more visible firms in the threatened industry restrain price increases on those products where price changes are readily apparent to the public; the smaller, less visible firms do not exercise such price moderation. As the threat of governmental price regulation diminishes, firms which had previously exhibited price restraint (and thus whose products are underpriced relative to the market norm) rapidly increase prices to equalize with the industry average.

Our aim in this paper is to explain some of the principal factors that determine when the probability of government price regulation is apt to be high. In particular, we will deal with the joint effects of public and media attention on government regulatory threats. We propose that, other things equal, such intervention will be more likely (1) the more intense the public demand for price regulation, (2) the fewer and less urgent are the competing demands on legislators, and (3) the less available are external scapegoats to whom the industry can attribute responsibility for price increases. We refer to these three factors as the *demand effect*, the *crowding-out effect*, and the *scapegoat effect*, respectively. These three factors affect the credibility of government threats to intervene.

We wish to test these hypotheses using the oil crisis of the late 1970s as a case study. To do so, we first need a measure of the intensity of constituency pressure demanding regulation. Direct measures of public opinion, such as polls and surveys, do not occur with sufficient frequency or regularity to be useful in this context. Therefore, we develop an indirect measure of constituency pressure from television news data. Greater television exposure of a problem signals urgency and may, in a feedback loop, actually increase constituency pressure demanding redress of that problem (and thus probably increase subsequent TV coverage). The demand effect implies that the greater the amount of television time devoted to oil news the greater the regulatory threat. This is consistent with research viewing the media as a major setter of the public agenda.¹

The government must decide how to react to constituency pressure demanding regulatory intervention. The government’s capacity to react changes through time. In particular, there are times when the

1. See, for example, Iyengar, Peters, and Kinder, 1982, and Behr and Iyengar, 1985. Parenti (1986:ix) argues that “for many people an issue does not exist until it appears in the news media. . . . Even when we don’t believe what the media say, we are still hearing or reading their viewpoints rather than some other. They are still setting the agenda, defining what it is we must believe or disbelieve, accept or reject.”

government is simply too busy with more pressing issues to attend to demands for regulatory intervention. This can be viewed as an information-processing constraint or as a time-and-resource constraint. That is, the government's reaction to constituency pressure depends on factors which limit the government's ability and interest in doing something about that pressure (see Radner and Rothschild, 1975). If the government is busy putting out fires on one front, then it has less time and fewer resources available to attend to other matters. We refer to this as the crowding-out effect.

We assume that higher domestic oil prices trigger consumer pressure for oil company regulation. This would be true even if the domestic price increases are caused by international events which affect world oil markets. However, consumer pressure to regulate the domestic industry should be less if the international connection is well publicized than if that connection is not well publicized. Information which places the responsibility for undesirable actions (such as price increases, shortages, or quotas) on some entity other than the domestic industry can reduce the pressure to regulate that industry. We refer to this as the scapegoat effect.²

As with the demand effect, we measure the crowding-out and scapegoat effects indirectly using television news data. We describe our empirical measures in the next section. We examine the importance of these three effects in the context of the regulatory threat hypothesis with a simple yet very flexible model of relative firm pricing. In subsequent sections we develop this model and present the empirical results. We examine the period from 1977 through 1980, which includes the high point of the late 1970s oil crisis, the summer of 1979.

Measurement of Constituency Pressure

To determine the importance of the demand, crowding-out, and scapegoat effects vis-à-vis the threat of regulation we must decide on measures for each effect. We measure the demand effect by *govo*, the percentage of news time devoted to federal government activity in the oil industry. This measure does not include general news stories regarding the oil industry, such as exploration activities or the Alaskan pipeline, unless the report discusses the involvement of the federal government.

2. There is similar evidence that presidential popularity does not drop as rapidly in response to negative outcomes when there is a convenient external explanation. See Hibbs, Rivers, and Vasilatos, 1982.

We measure the crowding-out and scapegoat effects with five news variables, all measured in percentage terms, defined as follows:

- D: Domestic news regarding the federal government.
This category includes stories about the Supreme Court, HEW, Department of Agriculture, and so on. The only federal government news items excluded from this category are those involving oil issues. (These news items are separately measured by GOVO.)
- F: Foreign–U.S. interaction other than Middle East.
This category includes stories, such as SALT and Panama Canal negotiations, which involve interaction of the United States with foreign countries other than those in the Middle East.
- ME-US: Middle East–U.S. foreign policy interaction.
This category includes stories, such as the Camp David accords and the Iranian hostage crisis, which directly involve the U.S. government with Middle East governments.
- ME-I: Middle East internal political news.
This category includes items, such as hostilities in Lebanon and the Iranian revolution, which do not explicitly involve the U.S. government. It does not include oil market stories, such as those about OPEC.
- ME-OIL: Middle East oil market news.
This category includes news items about OPEC and other Middle East oil market stories.

We exclude state and local political news from the domestic category because the federal government wields greater potential for regulatory control of the oil industry. We also exclude stories on natural disasters, human interest, economic events, the weather, and criminal activity unless such stories involve the federal government.

These categories distinguish among political distractions. Categories D, F, and ME-US relate directly to the federal government. These categories may be used to test the crowding-out effect. Because oil industry regulation is a domestic issue, we expect the domestic issues news variable (D) to exhibit the strongest crowding-out effect.³

3. There is an issue of how fine a measure to use for the crowding-out effect. This is particularly relevant for the domestic category. Within the federal government, different agencies are responsible for energy regulation and, say, labor market regulation. Energy regulation can proceed while presidential and legislative attention focus on labor market issues. The questions, then, are to what extent legislation can proceed while presidential and legislative attention are directed elsewhere, and to what extent domestic issues deflect presidential and legislative attention from energy issues. At this initial inquiry, we select a relatively broad measure of competing issues.

The federal government's interactions with other nations is separated into two categories due to the unique role that the Middle East plays in the world oil market. United States dealings with non-Middle East nations (F) and Middle East nations (ME-US) may exhibit a crowding-out effect. Their effects should be less than that of domestic issues. ME-US may also exhibit a scapegoat effect.

The final categories (ME-I and ME-OIL) pertain to Middle East internal affairs and international oil market issues that do not directly involve the U.S. government; they provide an external rationale for domestic price increases. Few people would dispute the influence of OPEC on the United States oil market after 1973. OPEC actions provide a scapegoat for domestic oil companies if American consumers believe OPEC decisions caused a domestic oil price increase. In contrast, ME-I provides a broader measure of the scapegoat effect than ME-OIL. Middle East political instability may provide a signal to American consumers of potential oil market instability. Since the public may view Middle East oil market news differently from the rest of Middle East political news, we separately measure these two types of Middle East news.

These categories create a partial partition of the news data; not all news items are included. If a news item is included, it is included in only one of the categories. We placed network news items into categories GOVO, D, F, ME-US, ME-I, and ME-OIL for the period February 1977 through early November 1980 using *Television News Index and Abstracts*. Truncating the sample at the time of the presidential election avoids complications that might arise due to the altered power of President Carter and congressmen who became lame ducks after the 1980 election. The four-year period contained over 3,600 broadcasts. Slightly more than 58% of the approximately 80,000 minutes of network news time was classified into over 21,000 separate entries.⁴

We also noted whether a story was reported within the first five minutes of the broadcast. We constructed a parallel set of variables from this information, denoted with a "5" at the end (e.g., govov5). Lead stories may be more accurate than other stories as measures of demand, crowding-out, and scapegoat effects. For example, govov5 may better reflect pressure for regulation than GOVO because oil news

4. Our coding procedure was as follows. A story was coded only if we judged it to fit one of the categories. The vast majority of stories unambiguously fit or did not fit our categories. If there was a question on whether to include a story, another coder had to agree with the first coder. There were less than 200 questionable stories over the four-year sample period, less than 1% of all coded entries. For each coded story we noted date, network, starting time, stopping time, brief story summary, and category. We performed a series of tests to verify the accuracy of the data. These tests accounted for typing errors and consistency between coded category and story summary.

stories at the ends of broadcasts might be filler and therefore not be as worrisome to firms within the industry.⁵

Empirical Specification

The regulatory threat hypothesis predicts how firms within an industry set prices relative to each other. To test this hypothesis we examine the ratio of product prices charged by two firms rather than the prices of each firm individually. This allows us to reduce the number of descriptive variables to those which vary from period to period rather than examining all variables that affect each firm's pricing decision.

We shall focus on two companies, Asiatic and Exxon. Exxon and Asiatic are among the most important players in the New York harbor market, but they have very different levels of public visibility. Under the regulatory threat hypothesis a highly visible firm, such as Exxon, is more likely to act in an accommodating fashion to the threat of regulatory intervention (i.e., not raise its price) than is a politically invisible but nonetheless important firm, such as Asiatic, acting in the same market. Asiatic is invisible to the public at large because it has no retail operations. One indication of Asiatic's invisibility is the fact that Asiatic was *never* mentioned on network news broadcasts during the 1977–80 period. In contrast, Exxon, the largest domestic major, was mentioned many times.⁶

Let P_a , P_e , and P_s be the logarithms of Asiatic, Exxon, and spot market prices in week t . For notational simplicity, variables do not carry week designations unless they differ from week t ; in that case the deviation from week t is noted (for example, -1 refers to the week prior to week t). Define the (logarithm of the) Asiatic-to-Exxon product price ratio in week t to be $AE = P_a - P_e$. Finally, let $dP_i = P_i - P_{i,-1}$ be the percentage change in company i 's (or the spot) price during week t , and $dAE = AE - AE_{-1}$ be the percentage change in the Asiatic-to-Exxon price ratio.

The change in the Asiatic-to-Exxon price ratio, dAE , should depend on the price ratio in the previous period relative to its equilibrium level, changes in the spot price, and demand, crowding-out, and scapegoat effects. The relative price adjustment process to be estimated is

$$dAE = a_1(AE_{-1} - AE^*) + a_2dP_s + a_3Demand + a_4Crowding-out + a_5Scapegoat + e. \quad (1)$$

5. The leading news story in a broadcast is generally the most important story of the day. Foote and Steele (1986) find that two of three networks agree on the lead story 91% of the time and all three agree on the lead story 43% of the time.

6. Refined petroleum product price data are compiled from *Oil Buyers' Guide*, which has the broadest range of data available for Asiatic and Exxon.

Under stable market conditions, there is some equilibrium value of AE , say AE^* . This price ratio is characterized by a stable function of a few explanatory variables, including possible quality differences in the product between companies and differences in the value of having an Exxon versus an Asiatic supply contract. The actual price ratio AE need not always be AE^* but will tend toward AE^* if the equilibrium ratio is stable. If the actual price ratio in the previous week exceeds AE^* , we would expect the current price ratio to decline toward AE^* , and vice versa. Put another way, the price adjustment process should be self-correcting; in this case, $a_1 < 0$ describes the rate of disequilibrium adjustment.

The price ratio diverges from AE^* due to short-term disequilibrium effects, including changing price elasticities, production costs, and political factors. We do not need to determine own-price or cross-price elasticities of demand for all firms, however. While these elasticities are needed to discuss an individual firm's price setting they are not needed when examining relative prices across firms. Furthermore, it is unlikely that firm-specific own-price and cross-price elasticities change on a week-to-week basis.

Factor costs to the industry do vary from week to week. Since the spot market allows trade in a nonbranded commodity before its sale as a branded commodity, the spot price represents the marginal cost to each firm. We can therefore use changes in the spot price to measure changes in production costs. Economic theory predicts that a change in the marginal cost common to two firms affects the ratio of the firms' prices according to their relative elasticities of demand; the firm with the lower short-run elasticity of demand is able to pass on those cost increases by increasing its price faster than the firm facing a higher short-run elasticity of demand. In this context, changes in the spot price measure the relative short-run elasticities of demand because short-run elasticities are constant and the spot market equates marginal costs across firms.⁷ Therefore, $a_2 > 0$ if Asiatic has a lower short-run elasticity of demand than Exxon and vice versa if $a_2 < 0$.

Regulatory threats may affect the price ratio of two firms which differ in their degree of public visibility. The more visible firm should not increase its product price as much as the less visible firm when a regulatory threat arises. We expect Exxon, the largest domestic major oil company in the United States, to be relatively more visible than Asiatic, an American trading company which is an affiliate of Royal Dutch Shell but which has no retail marketing organization. The higher the demand effect, the more likely is Asiatic's price to be higher than

7. Furthermore, the Entitlements Program equated the cost of domestic crude across firms. Therefore, the mix of domestic and imported crude oil did not affect marginal costs for any firm (Kalt, 1981).

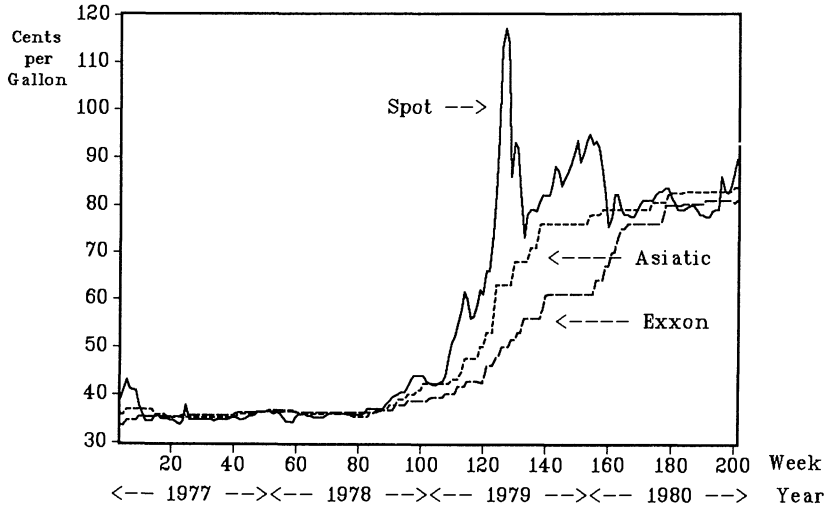


Figure 1. #2 Fuel Oil Prices, 1977–80: Asiatic, Exxon, and Spot

Exxon’s, and so $a_3 > 0$. The higher the crowding-out and scapegoat effects, the less likely is Asiatic’s price to be higher than Exxon’s, and so $a_4 < 0$ and $a_5 < 0$.⁸

In summary, we expect a_1 , a_4 , and a_5 to be negative and a_3 to be positive; the sign of a_2 depends on the relative price elasticities of Asiatic and Exxon. Since we do not know AE^* , we estimate $a_0 = -a_1AE^*$ instead. $GOVO$ is the primary measure of the demand effect, $ME-I$ and $ME-OIL$ are the primary measures of the scapegoat effect, and D , F , and $ME-US$ are the primary measures of the crowding-out effect.

Empirical Analysis

We estimate equation (1) with weekly data from 1977 through 1980. Excellent weekly wholesale price data are available from *Oil Buyers’ Guide* for the most visible decontrolled product, #2 fuel oil (also known as middle distillate, diesel fuel, and home heating oil). Note that gasoline was still subject to price controls in 1979.

Figure 1 shows Asiatic, Exxon, and spot prices for #2 fuel pur-

8. Intuitively, one can think of Asiatic’s price as the price that Exxon would charge if no regulatory threat existed. Thus, when $AE > 0$, there is a positive threat of regulation that is keeping Exxon’s price below what it would be in the absence of the threat. This interpretation should be tempered by the different adjustment speeds that Asiatic and Exxon may take to fundamental changes in the oil market, as reflected by changes in the spot price.

chased in New York harbor for the sample period. The three prices are essentially the same during 1977 and 1978, as economic theory would predict during stable market conditions. Prices rose in 1979 to a new plateau by the end of 1980. Asiatic let its price follow the spot price more rapidly than did Exxon, in line with the notion that the more visible firm's price lagged the less visible firm's price during crisis periods. Exxon roughly caught up to Asiatic and the spot market by mid 1980.

Table 1 presents summary statistics of regression variables for the full sample period and for 1979 alone. Spot, Asiatic's, and Exxon's prices grew about .4%–.5% per week during the full sample, although most of the increases occurred during 1979. During the crisis year, spot grew at 1.4%, Asiatic at 1.2%, and Exxon at 0.9% per week. The different growth rates reflect Exxon lagging behind Asiatic in increasing its product price. Note further how volatile the spot price was during 1979; the largest one-week spot price increase was 18.4% and the largest one-week spot price decrease was 28.2%. On average during 1979, Asiatic's price was 18.6% higher than Exxon (see *AE* for 1979); the maximum Asiatic-to-Exxon price differential was 30.5%.

Table 1 also shows summary statistics for the news coverage variables. These variables are in percentage terms. Government oil industry news was typically a small fraction of total television news time, but was as high as 16% during one week in 1979. Domestic news stories make up the bulk of news coverage, especially during the 1980 presidential campaign. The *ME-US* variable is high during 1979 due to the Iranian hostage situation.⁹

Table 2 presents ordinary least squares estimates of equation (1) during the entire four-year Carter presidency and during the crisis year, 1979. These tables lend support to the notions that firms react systematically and differentially to the threat of regulation and that certain media and public opinion factors reduce the threat of regulation. In particular, support is found for the demand, crowding-out, and scapegoat effects.

Before examining the three effects suggested by the regulatory threat hypothesis, we note that the estimated coefficients for the lagged price ratio and the change in the spot price are consistent and robust across all specifications. The constant term is not significantly different from zero for the full sample period, but is for 1979. This signifies that, once other factors are controlled, the firms do not charge different prices in the long run, but did in 1979. The price adjustment process (AE_{-1}) is always significant and in the range of 6% per week during the full

9. See Erfle, 1988, for a general discussion of the political news categories and how these categories relate to lead news.

Table 1. Summary Statistics

Series	Sample Period: 1977-1980 (Weekly Observations = 198)			Sample Period: 1979 (Weekly Observations = 53)				
	Mean	S.D.	Minimum	Maximum	Mean	S.D.	Minimum	Maximum
dP_a	0.0043	0.0173	-0.0275	0.1728	0.0118	0.0300	0.1728	0.1728
dP_e	0.0045	0.0129	-0.0137	0.0791	0.0091	0.0188	0.0791	0.0791
dP_s	0.0044	0.0403	-0.2819	0.1841	0.0137	0.0676	0.1841	0.1841
AE	0.0631	0.0878	-0.0237	0.3054	0.1859	0.0700	0.3054	0.3054
dAE	-0.0002	0.0193	-0.0551	0.1303	0.0027	0.0321	0.1303	0.1303
GOVO	1.62	2.76	0.00	16.36	4.00	4.07	16.36	16.36
GOVO5	0.72	1.81	0.00	13.33	2.03	2.91	13.33	13.33
D	31.31	11.31	4.24	64.57	24.73	10.16	50.30	50.30
F	9.78	7.57	0.00	43.09	10.08	7.48	31.07	31.07
ME-US	9.06	10.88	0.00	53.70	12.19	16.18	53.70	53.70
ME-I	5.78	6.21	0.00	39.92	6.78	5.49	23.21	23.21
ME-OIL	0.18	0.56	0.00	3.28	0.48	0.88	3.28	3.28

NOTES: dP_a , dP_e , and dP_s are the changes in the logarithm of #2 fuel oil price for Asiatic, Exxon, and spot market.

AE is the logarithm of the ratio of Asiatic to Exxon's price for #2 fuel oil, and dAE is the change in the ratio.

GOVO is government-related oil industry news coverage, and GOVO5 is news coverage beginning in the first five minutes of news broadcast. D is domestic government news, F is foreign news involving the U.S. government but excluding the Middle East, ME-US is Middle East news involving the U.S. government, ME-I is Middle East internal political news, and ME-OIL is Mideast oil market news.

See the text for more precise definitions of the variables. Weekly data, February 1977 through early November 1980.

Table 2. Determinants of #2 Fuel Oil Price Ratios: Factors Affecting the Threat of Regulation

Eq.	Constant	AE_{-1}	dP_s	GOVO	GOVO5	D	ME-I	ME-OIL	\bar{R}^2	DW	Sample Period
2.1	.0081 (1.66)	-.063 (3.7)	.122 (3.8)	.0020 (3.7)		-.0002 (1.84)	-.0002 (0.99)	.0009 (0.38)	.150	2.27	1977-80
2.2	.0089 (1.86)	-.061 (3.7)	.104 (3.2)		.0034 (4.3)	-.0002 (1.91)	-.0002 (1.05)	.0017 (0.73)	.170	2.27	1977-80
2.3	.0666 (3.25)	-.239 (3.5)	.124 (2.08)	.0014 (1.36)		-.0003 (0.76)	-.0028 (3.04)	-.0030 (0.68)	.273	2.11	1979
2.4	.0664 (3.30)	-.236 (3.5)	.108 (1.76)		.0026 (1.79)	-.0003 (0.81)	-.0027 (3.1)	-.0024 (0.53)	.293	2.11	1979

NOTES: Estimated coefficients of equation (1) in text. Dependent variable in each case is dAE , the percentage change in the ratio of Asiatic to Exxon's price for #2 fuel oil. AE_{-1} is the lagged ratio. dP_s is the percentage change in the spot price for #2 fuel oil. $covo$ is government-related oil industry news coverage, and $covo5$ is news coverage beginning in the first five minutes of news broadcast. d is domestic government news, $ME-I$ is Middle East internal political news, and $ME-OIL$ is Mideast oil market news. Weekly data, February 1977 through early November 1980 ($N = 198$). t statistics in parentheses.

sample period and 24% during 1979. An increase in the spot price raises the Asiatic-to-Exxon price ratio consistently and significantly. This implies that Asiatic had a lower short-run demand elasticity than Exxon and so passed on cost increases more quickly than did Exxon.¹⁰ In the context of long-term supply contracts prevalent in this market, one could say that Exxon was willing to bear more price risk than Asiatic. This suggests more stringent quantity provisions in Exxon's contract than in Asiatic's as a compensating differential.

News stories regarding government interest in the oil industry (*govo* and *govo5*) significantly increased the price charged by Asiatic relative to Exxon for the full sample period. The demand effect is less pronounced in 1979, but *govo5* remains significant at the 5% level using a one-tail test. While both measures provide similar results, *govo5* is stronger. This suggests that filler stories are less troublesome to major oil companies than news stories placed earlier in the broadcast. Overall, the results support the demand effect of the theory of regulatory threat.

There is limited support for the crowding-out effect in the estimates. Domestic political news (*D*) significantly reduces the gap between Asiatic's and Exxon's prices for the full sample period at the 5% level using a one-tail test (equations 2.1 and 2.2). In contrast, *D* does not exhibit a significant crowding-out effect in the crisis period subsample (equations 2.3 and 2.4).

There is a very strong scapegoat effect during the crisis period, but not during the four-year sample (*ME-I* is significant in equations 2.3 and 2.4 but not in equations 2.1 and 2.2). Surprisingly, *ME-OIL* is insignificant; Middle East oil market news does not provide a scapegoat to domestic oil companies. One reason may be that such news is already reflected in spot market prices. Alternatively, such news may truly reflect oil market fundamentals. If so, Exxon would match Asiatic's price increase in this instance. Thus the price ratio *AE* would not change.

Large, visible firms may lag their price adjustments for reasons other than regulatory threats. One reason is that large firms fear the loss of market share. That is, they may expect consumers to retaliate for price hikes by switching to other firms once the market has stabilized itself. Although such behavior has been documented in certain situations (Scherer, 1980:308), it is unlikely to offer an explanation in the current

10. To interpret the error correction mechanism modeled here, suppose that the spot price increased by 10% in week 1 and that the market is modeled by equation 2.1. Then Asiatic and Exxon might both raise their prices, but Asiatic would, on average, increase its price by 1.22% more than Exxon ($1.22\% = 10 \times .122$). This would create a gap between the two companies' prices. Asiatic and Exxon would eliminate about 6% of this gap in each subsequent week until their prices were again equal.

setting. First, consumer retaliation is a more credible concern in a bilateral bargaining situation where the consumers are large or organized. Such is not the case in the #2 fuel oil market, where the consumers are individually small and unorganized. Second, if market share were the primary concern, it is unlikely that firms would also restrict supplies during the crisis. However, Erfle, Pound, and Kalt (1981) document quantity rationing by major oil companies during the 1979 crisis. Therefore, we feel that adverse consequences were more likely to result in the political process than in an unorganized consumer boycott. The political system easily links angry consumers with political entrepreneurs (congressmen) who have the necessary leverage to make consumers' opinions matter.

We estimated other specifications of equation (1) that are not reported in Table 2. First, we included foreign news (F) and Mideast-U.S. government news ($ME-US$) in other specifications. These variables were never significant. Second, we substituted other prominent American oil companies for Exxon. Similar results obtain for Gulf, Mobil, Texaco, and Citgo. The effect of regulatory threat is stronger the larger the domestic major.¹¹ Third, we tested whether the results differed when $D5$ replaced D , when $F5$ replaced F , and so on. The results did not qualitatively differ from those in Table 2. Unlike *govo* the full news report versions of each distraction variable provided a better fit and higher t statistics than did the first-five-minute versions of each distraction variable. Fourth, we tested and found no evidence of simultaneous equation bias. Erfle and McMillan (1989) find that television news coverage of the oil industry depends on spot price changes and Asiatic price changes. However, neither the level nor the change in the Asiatic-to-Exxon price ratio affects news coverage. So while television merely reports general oil industry developments, television news reports influence the product prices that politically sensitive firms charge.

Conclusions

We argue that three factors affect the threat of regulation: the intensity of public opinion demanding intervention, the government's capacity to react to that pressure, and the availability of external scapegoats which deflect public attention from regulation. We find empirical support for each of these contentions. Focused public opinion, as mea-

11. All of these companies are more visible than Asiatic. Exxon is the largest and, arguably, the most visible domestic major. Erfle, McMillan, and Grofman (1989) examine evidence of the demand effect across these companies and find that the speed of price adjustment is inversely related to firm size.

sured by television coverage of the oil industry, differentially affected oil firms' product prices during the 1977–80 period. Measures of the government's ability to react to that pressure also affected relative prices for petroleum products.

We propose that highly visible firms moderate price increases relative to less visible firms when the threat of regulatory intervention is deemed to be serious. Our measure of constituency pressure demanding regulatory redress (derived from television news coverage of the oil industry) was a highly significant predictor of relative pricing behavior. The more visible firm (Exxon) moderated price increases relative to the less visible firm (Asiatic) when faced with threats of regulatory intervention. Our work also suggests the possibility that "jawboning" strategies, including the judicious use of threats and public exposure, may alter the behavior of the more politically sensitive firms, at least during market crises. However, the evidence suggests that jawboning strategies can work on a temporary basis only.¹²

We also identify two effects which may reduce the threat of regulation: the crowding-out effect and the scapegoat effect. The crowding-out effect pertains to situations where other political issues crowd out demands for regulation from the political agenda; the scapegoat effect pertains to situations where price increases can be attributed to some entity other than the domestic industry (e.g., the Middle East), thereby reducing the pressure to regulate the domestic industry. We find empirical support for both effects: the crowding-out effect was strongest over the entire 1977–80 time period, and the scapegoat effect was strongest during the oil crisis in 1979.

The results presented in this paper demonstrate that highly visible firms react to a threat of regulatory intervention as signaled by media attention focused on the industry. Our paper thus makes a contribution to the theory of regulation, which has hitherto almost exclusively focused on regulatory efficiency and regulatory compliance (Stigler, 1971; Wilson, 1980) or on the power of firms to affect government action (Salamon and Siegfried, 1977) and not on the role of regulatory threat in affecting decisions of the firm (Hunt, 1974; Erfle, Pound, and Kalt, 1981; Block, Nold, and Sidak, 1981; Olmstead and Rhode, 1985), as well as to the theory of media effects.

12. Whether the effect of media and regulatory threat on firm behavior is good or bad depends on normative criteria. The evidence presented here suggests that political pressure transmitted via the media may have contributed to petroleum shortages during 1979. Within the standard economic analysis this implies allocative inefficiency. However, if equity was also a goal of energy regulation at this time, as Harrison (1981) and Kalt (1981) argue, regulatory threats may well have contributed to achieving that goal. Relative weights for these two considerations is beyond the scope of this study and subject to further research.

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